CLAIMS

1. A gas flow generator comprising:

an ultrasonic driver comprising a piezoelectric or electrostrictive transducer mounted on a substrate, operation of the transducer being arranged to cause the driver to bend;

a first membrane disposed on or formed integrally with the transducer or the substrate; and

a second membrane mounted substantially parallel with the driver and spaced a given distance therefrom,

one of the membranes being perforate, whereby ultrasonic bending of the driver on actuation of the transducer causes a gas flow through the perforate membrane.

2. A gas flow generator according to claim 1, wherein either or both of the first or second membranes is perforate.

3. A gas flow generator according to claim 1, wherein the second membrane is disposed on or formed integrally with a second ultrasonic driver.

4. A gas flow generator according to one of claims 1 to 3, wherein one or each of the ultrasonic drivers is a piezoelectric transducer.

5. A gas flow generator according to claim 4, wherein the substrate and the piezoelectric transducer have substantially comparable stiffness.

6. A gas flow generator according to any one of the preceding claims, wherein the ultrasonic driver is annular.

7. A gas flow generator according to any one of the preceding claims, wherein the second membrane is supported on the substrate of the driver by a spacer.

8. A gas flow generator according to claim 7, wherein the spacer is generally annular and has an opening through which gas can flow into and out of a cavity formed between the driver and the second membrane.

9. A gas flow generator according to claim 7 or claim 8, wherein the spacer is mounted on an annulus which is connected to the ultrasonic driver by means of a plurality of spokes.

10. A gas flow generator according to any one of the preceding claims, wherein one or both of the first and second membranes is provided with one or more channels.

11. A gas flow generator according to any one of claims 1 to 5, wherein the ultrasonic driver is linear.